

The listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Previously Presented) A display device comprising:
 - a substrate having an insulating surface;
 - at least one thin film transistor formed on said insulating surface, said thin film transistor having a semiconductor film comprising silicon as an active layer thereof;
 - an interlayer insulating film comprising an inorganic material formed on said thin film transistor;
 - a first contact hole in said interlayer insulating film;
 - a wiring formed on said interlayer insulating film and electrically connected to said thin film transistor through said first contact hole formed in said interlayer insulating film;
 - a leveling film comprising an organic resin to provide a leveled upper surface over said thin film transistor;
 - a second contact hole through said leveling film and said interlayer insulating film; and
 - a pixel electrode formed over said leveled upper surface and directly connected to said semiconductor film of said thin film transistor through said second contact hole, wherein an edge of said leveling film at a periphery of said second contact hole is rounded,
 - wherein a surface of said pixel electrode is rounded along the rounded edge of said leveling film.
2. (Previously Presented) A display device according to claim 1 wherein said semiconductor film comprises crystalline silicon.

3. (Previously Presented) A display device according to claim 1 wherein said thin film transistor further comprises a gate electrode located over said semiconductor film with a gate insulating film interposed therebetween.

4. (Previously Presented) A display device according to claim 1 wherein said organic resin comprises polyimide.

5. (Previously Presented) A display device according to claim 1 wherein said pixel electrode comprises a transparent conductive film.

6. (Previously Presented) A display device according to claim 1 wherein said display is a digital gradation display.

7.-12. (Canceled)

13. (Previously Presented) A display device comprising:
a substrate having an insulating surface;
at least one thin film transistor formed on said insulating surface, said thin film transistor having a semiconductor film comprising silicon as an active layer thereof;
an interlayer insulating film over said thin film transistor, said interlayer insulating film comprising an inorganic material;
a leveling film comprising an organic resin formed over said interlayer insulating film and said thin film transistor; and
a pixel electrode formed over said leveling film and directly connected to said semiconductor film of said thin film transistor through an opening provided in said leveling film,
wherein an edge of said leveling film at a periphery of said opening is rounded,

wherein a surface of said pixel electrode is rounded along the rounded edge of said leveling film.

14. (Previously Presented) A display device according to claim 13 wherein said semiconductor film comprises crystalline silicon.

15. (Previously Presented) A display device according to claim 13 wherein said thin film transistor further comprises a gate electrode located over said semiconductor film with a gate insulating film interposed therebetween.

16. (Previously Presented) A display device according to claim 13 wherein said organic resin comprises polyimide.

17. (Previously Presented) A display device according to claim 13 wherein said pixel electrode comprises a transparent conductive film.

18. (Previously Presented) A display device according to claim 13 wherein said display is a digital gradation display.

19. (Previously Presented) A display device comprising:
a plurality of thin film transistors formed on an insulating surface, each of said thin film transistors comprising at least a semiconductor film;
an interlayer insulating film formed on the thin film transistors, said interlayer insulating film comprising an inorganic material;
first openings formed in the interlayer insulating film on the respective transistors;
a leveling layer formed over said interlayer insulating film to provide a leveled upper surface, wherein said leveling layer comprises an organic resin and is prevented from directly contacting said semiconductor film by said interlayer insulating film;

second openings through said leveling layer and said interlayer insulating film over the respective transistors; and

pixel electrodes formed over said leveled upper surface, each of said pixel electrodes being directly connected to said semiconductor film of the corresponding transistors through the corresponding second openings,

wherein an edge of said leveling layer at a periphery of each of said second openings is rounded,

wherein a surface of each of said pixel electrodes is rounded along the rounded edge of said leveling layer.

20. (Previously Presented) A display device according to claim 19 wherein said semiconductor film comprises crystalline silicon.

21. (Previously Presented) A display device according to claim 19 wherein said thin film transistor further comprises a gate electrode located over said semiconductor film with a gate insulating film interposed therebetween.

22. (Previously Presented) A display device according to claim 19 wherein said organic resin comprises polyimide.

23. (Previously Presented) A display device according to claim 19 wherein said pixel electrode comprises a transparent conductive film.

24. (Previously Presented) A display device according to claim 19 wherein said display is a digital gradation display.

25.-30. (Canceled)

31. (Previously Presented) A display device according to claim 1 wherein said display further comprises a tuner for receiving television radio wave to constitute a television.

32. (Canceled)

33. (Previously Presented) A display device according to claim 13 wherein said display further comprises a tuner for receiving television radio wave to constitute a television.

34. (Previously Presented) A display device according to claim 19 wherein said display further comprises a tuner for receiving television radio wave to constitute a television.

35. (Canceled)

36. (Previously Presented) A display device according to claim 31 wherein said television is a liquid crystal television.

37. (Canceled)

38. (Previously Presented) A display device according to claim 33 wherein said television is a liquid crystal television.

39. (Previously Presented) A display device according to claim 34 wherein said television is a liquid crystal television.

40. (Canceled)

41. (Previously Presented) A display device according to claim 1 wherein said thin film transistor has at least one gate electrode adjacent to said semiconductor film, said gate electrode comprising a material selected from the group consisting of silicon, molybdenum, tungsten, molybdenum silicide, and tungsten silicide.

42. (Canceled)

43. (Previously Presented) A display device according to claim 13 wherein said thin film transistor has at least one gate electrode adjacent to said semiconductor film, said gate electrode comprising a material selected from the group consisting of silicon, molybdenum, tungsten, molybdenum silicide, and tungsten silicide.

44. (Previously Presented) A display device according to claim 19 wherein said thin film transistor has at least one gate electrode adjacent to said semiconductor film, said gate electrode comprising a material selected from the group consisting of silicon, molybdenum, tungsten, molybdenum silicide, and tungsten silicide.

45. (Canceled)

46. (Previously Presented) A display device according to claim 1 wherein a liquid crystal material is formed between said substrate and an opposite substrate, said liquid crystal material selected from the group consisting of a twisted nematic liquid crystal, super twisted nematic liquid crystal, ferroelectric liquid crystal, antiferroelectric liquid crystal, dispersion liquid crystal, and polymer liquid crystal.

47. (Canceled)

48. (Previously Presented) A display device according to claim 13 wherein a liquid crystal material is formed between said substrate and an opposite substrate, said liquid crystal material selected from the group consisting of a twisted nematic liquid crystal, super twisted nematic liquid crystal, ferroelectric liquid crystal, antiferroelectric liquid crystal, dispersion liquid crystal, and polymer liquid crystal.

49. (Previously Presented) A display device according to claim 19 wherein a liquid crystal material is formed between said substrate and an opposite substrate, said liquid crystal material selected from the group consisting of a twisted nematic liquid crystal, super twisted nematic liquid crystal, ferroelectric liquid crystal, antiferroelectric liquid crystal, dispersion liquid crystal, and polymer liquid crystal.

50. (Canceled)

51. (Previously Presented) A display device according to claim 1 wherein said semiconductor film comprises silicon or germanium.

52. (Canceled)

53. (Previously Presented) A display device according to claim 13 wherein said semiconductor film comprises silicon or germanium.

54. (Previously Presented) A display device according to claim 19 wherein said semiconductor film comprises silicon or germanium.

55. (Canceled)

56. (Previously Presented) A display device comprising:

at least one thin film transistor formed over a substrate, said thin film transistor having a semiconductor film comprising silicon as an active layer thereof and a gate electrode adjacent to said semiconductor film with a gate insulating film interposed therebetween;

an insulating film comprising an inorganic material formed over said gate electrode;

a first contact hole in said insulating film;

a wiring formed on said insulating film and electrically connected to said semiconductor film through said first contact hole formed in said insulating film;

a leveling film comprising an organic resin to provide a leveled upper surface over said insulating film;

a second contact hole through said leveling film and said insulating film; and

a pixel electrode formed over said leveled upper surface and directly connected to said semiconductor film through said second contact hole,

wherein an edge of said leveling film at a periphery of said second contact hole is rounded,

wherein a surface of said pixel electrode is rounded along the rounded edge of said leveling film.

57. (Canceled)

58. (Previously Presented) A display device comprising:

at least one thin film transistor formed over a substrate, said thin film transistor having a semiconductor film comprising silicon as an active layer thereof and a gate electrode adjacent to said semiconductor film with a gate insulating film interposed therebetween;

an insulating film over said gate electrode, said insulating film comprising an inorganic material;

a leveling film comprising an organic resin formed over said insulating film; and
a pixel electrode formed over said leveling film and directly connected to said semiconductor film through an opening provided in said leveling film,
wherein an edge of said leveling film at a periphery of said opening is rounded,
wherein a surface of said pixel electrode is rounded along the rounded edge of said leveling film.

59.-60. (Canceled)

61. (Previously Presented) A television having a display unit and a tuner for receiving television radio wave, said display unit comprising:

at least one thin film transistor formed over a substrate, said thin film transistor having a semiconductor film comprising silicon as an active layer thereof and a gate electrode adjacent to said semiconductor film with a gate insulating film interposed therebetween;

an insulating film comprising an inorganic material formed over said gate electrode;

a first contact hole in said insulating film;

a wiring formed on said insulating film and electrically connected to said semiconductor film through said first contact hole formed in said insulating film;

a leveling film comprising an organic resin to provide a leveled upper surface over said gate electrode;

a second contact hole through said leveling film and said insulating film; and

a pixel electrode formed over said leveled upper surface and directly connected to said semiconductor film through said second contact hole,

wherein an edge of said leveling film at a periphery of said second contact hole is rounded,

wherein a surface of said pixel electrode is rounded along the rounded edge of said leveling film.

62. (Canceled)

63. (Previously Presented) A television having a display unit and a tuner for receiving television radio wave, said display unit comprising:

at least one thin film transistor formed over a substrate, said thin film transistor having a semiconductor film comprising silicon as an active layer thereof and a gate electrode adjacent to said semiconductor film with a gate insulating film interposed therebetween;

an insulating film over said gate electrode, said insulating film comprising an inorganic material;

a leveling film comprising an organic resin formed over said insulating film; and

a pixel electrode formed over said leveling film and directly connected to said semiconductor film through an opening provided in said leveling film,

wherein an edge of said organic resin film at a periphery of said opening is rounded,

wherein a surface of said pixel electrode is rounded along the rounded edge of said leveling film.

64.-65. (Canceled)

66. (Previously Presented) A display device according to claim 56, wherein said semiconductor film comprises crystalline silicon.

67. (Canceled)

68. (Previously Presented) A display device according to claim 58, wherein said semiconductor film comprises crystalline silicon.

69.-70. (Canceled)

71. (Previously Presented) A television according to claim 61, wherein said semiconductor film comprises crystalline silicon.

72. (Canceled)

73. (Previously Presented) A television according to claim 63, wherein said semiconductor film comprises crystalline silicon.

74.-75. (Canceled)

76. (Previously Presented) A display device according to claim 56, wherein said thin film transistor further comprises a gate electrode located over said semiconductor film with a gate insulating film interposed therebetween.

77. (Canceled)

78. (Previously Presented) A display device according to claim 58, wherein said thin film transistor further comprises a gate electrode located over said semiconductor film with a gate insulating film interposed therebetween.

79.-80. (Canceled)

81. (Previously Presented) A television according to claim 61, wherein said thin film transistor further comprises a gate electrode located over said semiconductor film with a gate insulating film interposed therebetween.

82. (Canceled)

83. (Previously Presented) A television according to claim 63, wherein said thin film transistor further comprises a gate electrode located over said semiconductor film with a gate insulating film interposed therebetween.

84.-85. (Canceled)

86. (Previously Presented) A display device according to claim 56, wherein said organic resin comprises polyimide.

87. (Canceled)

88. (Previously Presented) A display device according to claim 58, wherein said organic resin comprises polyimide.

89.-90. (Canceled)

91. (Previously Presented) A television according to claim 61, wherein said organic resin comprises polyimide.

92. (Canceled)

93. (Previously Presented) A television according to claim 63, wherein said organic resin comprises polyimide.

94.-95. (Canceled)

96. (Previously Presented) A display device according to claim 56, wherein said pixel electrode comprises a transparent conductive film.

97. (Canceled)

98. (Previously Presented) A display device according to claim 58, wherein said pixel electrode comprises a transparent conductive film.

99.-100. (Canceled)

101. (Previously Presented) A television according to claim 61, wherein said pixel electrode comprises a transparent conductive film.

102. (Canceled)

103. (Previously Presented) A television according to claim 63, wherein said pixel electrode comprises a transparent conductive film.

104.-105. (Canceled)

106. (Previously Presented) A television according to claim 61, wherein said television is a liquid crystal television.

107. (Canceled)

108. (Previously Presented) A television according to claim 63, wherein said television is a liquid crystal television.

109.-110. (Canceled)

111. (Previously Presented) A display device according to claim 56, wherein a liquid crystal material is formed between said substrate and an opposite substrate, said liquid crystal material selected from the group consisting of a twisted nematic liquid crystal, super twisted nematic liquid crystal, ferroelectric liquid crystal, antiferroelectric liquid crystal, dispersion liquid crystal, and polymer liquid crystal.

112. (Canceled)

113. (Previously Presented) A display device according to claim 58, wherein a liquid crystal material is formed between said substrate and an opposite substrate, said liquid crystal material selected from the group consisting of a twisted nematic liquid crystal, super twisted nematic liquid crystal, ferroelectric liquid crystal, antiferroelectric liquid crystal, dispersion liquid crystal, and polymer liquid crystal.

114.-115. (Canceled)

116. (Previously Presented) A television according to claim 61, wherein a liquid crystal material is formed between said substrate and an opposite substrate, said liquid crystal material selected from the group consisting of a twisted nematic liquid crystal, super twisted nematic liquid crystal, ferroelectric liquid crystal, antiferroelectric liquid crystal, dispersion liquid crystal, and polymer liquid crystal.

117. (Canceled)

118. (Previously Presented) A television according to claim 63, wherein a liquid crystal material is formed between said substrate and an opposite substrate, said liquid crystal material selected from the group consisting of a twisted nematic liquid crystal, super twisted nematic liquid crystal, ferroelectric liquid crystal, antiferroelectric liquid crystal, dispersion liquid crystal, and polymer liquid crystal.

119.-120. (Canceled)

121. (Previously Presented) A display device according to claim 56, wherein said display device is a digital gradation display device.

122. (Canceled)

123. (Previously Presented) A display device according to claim 58, wherein said display device is a digital gradation display device.

124.-125. (Canceled)

126. (Previously Presented) A television according to claim 61, wherein said display unit is a digital gradation display device.

127. (Canceled)

128. (Previously Presented) A television according to claim 63, wherein said display unit is a digital gradation display device.

129.-130. (Canceled)

131. (New) A display device comprising:

at least one thin film transistor formed over a substrate, said thin film transistor having a semiconductor film comprising silicon as an active layer thereof and a gate electrode adjacent to said semiconductor film with a gate insulating film interposed therebetween;

an insulating film over said gate electrode, said insulating film comprising an inorganic material;

a leveling film comprising an organic resin formed over said insulating film; and

a pixel electrode formed over said leveling film and electrically connected to said semiconductor film through an opening provided in said leveling film,

wherein an edge of said leveling film at a periphery of said opening is rounded,

wherein a surface of said pixel electrode is rounded along the rounded edge of said leveling film.

132. (New) A display device according to claim 131 wherein said organic resin comprises polyimide.

133. (New) A display device according to claim 131 wherein said pixel electrode comprises a transparent conductive film.

134. (New) A display device according to claim 131 wherein said display is a digital gradation display.

135. (New) A display device comprising:

at least one thin film transistor formed over a substrate, said thin film transistor having a semiconductor film comprising silicon as an active layer thereof and a gate

electrode adjacent to said semiconductor film with a gate insulating film interposed therebetween;

an insulating film comprising an inorganic material formed over said gate electrode;

a first contact hole in said insulating film;

a wiring formed on said insulating film and electrically connected to said semiconductor film through said first contact hole formed in said insulating film;

a leveling film comprising an organic resin to provide a leveled upper surface over said insulating film;

a second contact hole through said leveling film; and

a pixel electrode formed over said leveled upper surface and electrically connected to said semiconductor film through said second contact hole,

wherein an edge of said leveling film at a periphery of said second contact hole is rounded,

wherein a surface of said pixel electrode is rounded along the rounded edge of said leveling film.

136. (New) A display device according to claim 135 wherein said organic resin comprises polyimide.

137. (New) A display device according to claim 135 wherein said pixel electrode comprises a transparent conductive film.

138. (New) A display device according to claim 135 wherein said display is a digital gradation display.

139. (New) A television having a display unit and a tuner for receiving television radio wave, said display unit comprising:

at least one thin film transistor formed over a substrate, said thin film transistor having a semiconductor film comprising silicon as an active layer thereof and a gate electrode adjacent to said semiconductor film with a gate insulating film interposed therebetween;

an insulating film over said gate electrode, said insulating film comprising an inorganic material;

a leveling film comprising an organic resin formed over said insulating film; and

a pixel electrode formed over said leveling film and electrically connected to said semiconductor film through an opening provided in said leveling film,

wherein an edge of said organic resin film at a periphery of said opening is rounded,

wherein a surface of said pixel electrode is rounded along the rounded edge of said leveling film.

140. (New) A television according to claim 139 wherein said organic resin comprises polyimide.

141. (New) A television according to claim 139 wherein said pixel electrode comprises a transparent conductive film.

142. (New) A television according to claim 139 wherein said television is a liquid crystal television.

143. (New) A television having a display unit and a tuner for receiving television radio wave, said display unit comprising:

at least one thin film transistor formed over a substrate, said thin film transistor having a semiconductor film comprising silicon as an active layer thereof and a gate

electrode adjacent to said semiconductor film with a gate insulating film interposed therebetween;

an insulating film comprising an inorganic material formed over said gate electrode;

a first contact hole in said insulating film;

a wiring formed on said insulating film and electrically connected to said semiconductor film through said first contact hole formed in said insulating film;

a leveling film comprising an organic resin to provide a leveled upper surface over said gate electrode;

a second contact hole through said leveling film; and

a pixel electrode formed over said leveled upper surface and electrically connected to said semiconductor film through said second contact hole,

wherein an edge of said leveling film at a periphery of said second contact hole is rounded,

wherein a surface of said pixel electrode is rounded along the rounded edge of said leveling film.

144. (New) A television according to claim 143 wherein said organic resin comprises polyimide.

145. (New) A television according to claim 143 wherein said pixel electrode comprises a transparent conductive film.

146. (New) A television according to claim 143 wherein said television is a liquid crystal television.